

УДК 621.791.763

Дроб'язко М. - ст. гр. ЗА-31

*Національний Технічний Університет України «Київський Політехнічний Інститут імені Ігоря Сікорського»*

## **МОДЕРНІЗАЦІЯ РЕГУЛЯТОРІВ КОНТАКТНОГО ТОЧКОВОГО ЗВАРЮВАННЯ ШЛЯХОМ ВПРОВАДЖЕННЯ СУЧАСНИХ АПАРАТНИХ ПЛАТФОРМ**

Науковий керівник: д.т.н., професор Рижов Р.М.

Drobiazko M.

*National technical university of Ukraine "Igor Sikorsky Kyiv polytechnic institute"*

## **MODERNIZATION OF SPOT WELDING REGULATOR BY IMPLEMENTATION OF MODERN HARDWARE PLATFORMS**

Supervisor: Ryzhov R., Dsc, professor

Ключові слова: контактне точкове зварювання, пристрої керування.

Key words: spot welding, control devices.

Today, resistance spot welding is used in all key areas of engineering. The use is specially expressed in aircraft construction, shipbuilding and automotive industry. However, most spot welding machines are still using outdated spot welding regulators.

Modern hardware systems reduce overall mass properties of the device, improve the quality of welding joints by introducing feedback links to ensure the stability of resistance spot welding. The feature of the revised system is the need for setting welding conditions by connecting the machine to a personal computer that would eliminate human error when setting welding regimen. Possible additional functions are recording and transmission of the data wirelessly to a collection center, where the data are recorded and stored for a certain period of time.

At this moment, the upgraded the device replicates the functionality of the old system. But the new system allows you to replace obsolete electronic items that are currently inaccessible, with modern components that are cheap and readily available. The module system allows the broken components to be quickly replaced with new ones, which reduces financial losses due to stoppage of the machine to a minimum.

However, the latest features of the developed device are the ability to change the classic sequence of technological operations (compression, welding, forging, pause). Thus, it was proposed the use of surface preparation operations in welding of aluminum alloys, which includes managing configuration changes by the commutation of the magnetic field of electromagnetic system.

There was also experimental verification of the feasibility of the quality control of welded joints during the forging operation. For its implementation of the contact spot welding machine introduced additional measuring devices.

Thus, the developed device allows upgrading existing welding machines, as well as implementing new technologies in spot welding process.